

# Create a planter



Allison Maher  
Physical Science  
Ballard High School  
Monsanto

## Part I: Overview of Business

Monsanto is a company that was founded in 1901. Throughout their years of existence, their focus has become agriculture and working to support farmers to produce more yield while conserving natural resources such as water and energy. Monsanto uses seed science to look at how to bring more food to harvest. They also use precision equipment to ensure consistent seeding rate, plant depth, seedbed preparation, and many other factors to create the best conditions to deliver high yields.

## Part II: Job Specifics

Monsanto researches and develops improved farming technology. Monsanto has developed precision planting equipment to help increase yield. Every modern day farmer owns a planter. Each new piece of technology can be implemented on an existing planter. Planters need to have uniform procedures to ensure that the crop will grow uniformly.

## Part III: Introduce the Problem

Farmers have a plate planters but they are inefficient. They plant multiple seeds or skip seeds. They also have varying seed spacing. Research has shown that multiple plants or skips, as well as varying seed spacing can decrease the overall yield. How do we fix these issues on the planter to help increase yield?

## Part IV: Background

- Research shows that a seed spacing of 6 inches is optimal
- Research shows that multiples and skips can reduce overall yield 1-4 bushels per acre depending on the percentage of loss.
- Requirements for project:  
[docs.google.com/document/d/1LUMZSmkuBWSvqaMFtYkXS-Dqo21S9guYLWh\\_6qshh5c/edit?usp=sharing](https://docs.google.com/document/d/1LUMZSmkuBWSvqaMFtYkXS-Dqo21S9guYLWh_6qshh5c/edit?usp=sharing)
- Video of finger meter  
[www.youtube.com/watch?v=u6GN73e9tdk](https://www.youtube.com/watch?v=u6GN73e9tdk)
- Video of plate planter  
[www.youtube.com/watch?v=pR10SogxpxE](https://www.youtube.com/watch?v=pR10SogxpxE)

## Part V: Business Solution

- Monsanto owns precision planting, which is a company that specializes in implements for the planter to improve yields.
- Precision planting engineers have designed a planter plate that is vacuum powered.. It releases seeds that are doubled and it helps decrease the chance for skips.

## Part VI: Student Solutions

- Students will design their own planter plate that will deliver seeds 6 inches apart and have singulation.
- This will help students develop skills in experimental design as well as introduction to engineering.
- Students should use household items as materials for this project should not be purchased.